[45] Date of Patent:

Sep. 23, 1986

[54] MULTIPLE FORMAT KEYBOARD

[75] Inventor: Roger J. McGunnigle, New York,

N.Y.

[73] Assignee: FWM Enterprises, Inc., Somers,

N.Y.

[21] Appl. No.: 676,610

[22] Filed: Dec. 3, 1984

Related U.S. Application Data

[63]	Continuation	of Ser.	No.	401,913,	Jul.	26,	1982,	aban-
	doned.						,	

[51]	Int. Cl.4	B41J 5/10
[52]	U.S. Cl	400/486; 400/493
		400/484; 400/489; 400/496
[58]	Field of Search	400/261, 493, 485, 486
		400/496 48/

[56] References Cited

U.S. PATENT DOCUMENTS

1,013,084	12/1911	Westin	400/261.2
1,537,147	5/1925	Smith	
1,610,911	12/1926	Wilson	
1,713,607	5/1929	Kidder	
1,736,125	11/1929	Michelsen	
1,802,500	4/1931	Des Jardins	
2,471,588	5/1949	Sears	
2,697,503	12/1954	Yaeger	
3,847,263	11/1974	X	
3,934,247	1/1976	Mueller	
3,944,043	3/1976	Gremillet	
4,244,659	1/1981	Matt	400/486
4,280,121	7/1981	Crask 34	
4,336,530	6/1982	Loike et al	400/493
4,480,432	11/1984	Willcox	400/490

FOREIGN PATENT DOCUMENTS

616726	7/1935	Fed. Rep. of Germany 400/261
1080126	10/1960	Fed. Rep. of Germany 400/490
1932271	7/1977	Fed. Rep. of Germany 400/261
71133	6/1981	Japan 340/365 R

OTHER PUBLICATIONS

Eliezer et al. "Key Identification System" IBM Technical Disclosure Bulletin vol. 19, No. 5, pp. 1548–1549, 10/76.

Bigbie et al "Programmable Key . . . Device" IBM Technical Disclosure Bulletin vol. 21, No. 2, pp. 442-444, 7/78.

Chukran, "Dual Keyboard..." IBM Technical Disclosure Bulletin vol. 26, No. 3B, p. 1425, 8/83.

Cooper et al., "Changeable Array Keyboard" IBM Technical Disclosure Bulletin vol. 11, No. 5, p. 524, 10/68.

Mathews, "Dual-Keyboard Graphics" IBM Technical Disclosure Bulletin vol. 19, No. 2, p. 375, 7/76.

Potak, "Quick Changeable Keytop Indicia" IBM Technical Disclosure Bulletin vol. 12, No. 4, p. 622, 9/69. D. Larsen, "QWERTY Just Not Your Type?", Los Angeles Times.

"QWERTY Keyboard: a Historical Lesson", The Boston Globe, Jan. 6, 1985.

P. Niesink, "DSK Keyboard for the Apple," Creative Computing (1/82).

B. Seawell, "Alternative to 'QWERTY'," Components (11/83).

U.S. Navy Report, "Simplified Keyboard Retraining" (7/44, 10/44).

U.S. Navy Suggestion, "Improving Stenographic Production" (5/46).

A. Dvorak, "Pertinent Information Re Simplified Keyboard" (1/44).

A. Dvorak, "Better Typewriter Keyboard," Nat'l Bus. Ed. Qt. (12/43).

Primary Examiner—William Pieprz Attorney, Agent, or Firm—Leo Zucker

[57] ABSTRACT

A keyboard arrangement suitable for use in typewriters, word processors, computer terminals and the like includes a number of manually actuable key members supported in a given array. Different letter formats can be selected for those key members corresponding to letter characters, wherein each of the letter character key members is made to correspond to a selected one of at least two different letters. Accordingly, a user can select, for example, either the conventional typewriter letter format or a new format wherein letters are assigned to the key members according to the frequency of use of the letters in a given language and the relative ease of accessibility of each key member to the fingers of the user's hands. In one embodiment, the key members in the left-hand portion of the keyboard array are arranged in columns which slope downwardly toward the left side of the array, and the key members in the right hand portion of the array form columns which slope downwardly toward the right side of the array.

18 Claims, 26 Drawing Figures

